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EXAMINER

OLANIRAN, FATIMAT O

ART UNIT	PAPER NUMBER
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2614

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/520,201	Applicant(s) AARTS ET AL.	
	Examiner FATIMAT O. OLANIRAN	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 10/19/2009 have been fully considered but they are not persuasive.
2. Examiner respectfully disagrees with applicant's arguments, Truman discloses processing as part of a decoder where the original audio before encoding is not necessary (Fig. 1bcol. 6 line 20-62 col. 8 line 28-35). Truman's post-processing cited by Examiner is part of the Truman's decoding process.
3. In addition applicant does not give the claim language post-processing the broadest most reasonable interpretation.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5, 8, 10-12, 14, 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Truman et al (7447631).

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Claim 1, Truman discloses an audio system comprising: a post-processor arranged to alter successive fragments of a decoded audio signal to provide successive fragments of a post-processed audio signal, the successive fragments of the decoded audio signal having been produced by decoding successive fragments of a previously-encoded audio signal (Fig. 1a-1b and col. 6 line 20-37 and col. 6 line 52-61 element 25, 29); a distortion detector for determining a degree to which quantization noise introduced in encoding said successive fragments of said previously-encoded audio signal becomes audible due to said post-processing of said successive fragments of said decoded audio signal (Fig. 1b and col. 6 line 20-37 and 52-61 and col. 13 line 8-41 element 23, 24); the quantization noise derived from estimated bit-stream code fragments without having an original audio signal fragment available (Fig. 1b col. 6 line 20-63, col. 8 lines 29-35) and a regulator arranged to control said post-processor by adjusting the degree of post-processing (Fig. 1b and col. 6 line 52-61 and col. 13 line 8-41 element 23, 24).

Claim 2 analyzed with respect to claim 1, Truman discloses wherein the distortion detector further comprises: a masking threshold generator arranged to provide an estimate of a masking threshold for said successive fragments of the post-processed audio signal (Fig. 1b col. 9 line 1-20); and a noise level detector arranged to provide an estimate of a noise level for said successive fragments of said post-processed audio signal (Fig. 1b col. 9 line 1-20 and col. 11 line 5-34) wherein said distortion detector determines said degree to which the quantization noise introduced in encoding said successive fragments of said previously-encoded audio signal becomes audible

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according to a degree to which said noise level exceeds said masking threshold of said successive fragments of said post-processed audio signal (Fig. 1b col. 9 line 1-20 and col. 11 line 5-34).

Claim 3 analyzed with respect to claim 1-2, Truman discloses further comprising a decoder arranged to receive said successive fragments of said previously-encoded audio signal, to decode said successive fragments of said previously-encoded audio signal, and to produce said successive fragments of the decoded audio signal (Fig. 1a & 1b).

Claim 5 analyzed with respect to claim 1-2, Truman discloses wherein said masking threshold generator comprises a psycho-acoustic modeling component arranged to transform said successive fragments of said post-processed audio signal into the frequency domain; and to derive said masking threshold therefrom (Fig. 1b and col. 6 lines 20-60).

Claim 8 analyzed with respect to claim 1-2, Truman discloses where said noise level detector is arranged to determine quantization levels employed in said previously-encoded audio signal (Fig. 1b col. 9 lines 1-20 and col. 11 line 5-34).

Claim 10, Truman discloses a method of processing an audio stream, the method comprising: post-processing successive fragments of a decoded audio signal to provide successive fragments of a post-processed audio signal, the successive fragments of the decoded audio signal having been produced by decoding successive fragments of a previously-encoded audio signal (Fig. 1a-1b and col. 6 line 20-37 and col. 6 line 52-61 element 25, 29); determining a degree to which quantization noise introduced in encoding said successive fragments of the previously-encoded audio signal becomes audible due to said post-processing of said successive fragments of said decoded audio signal; the quantization noise derived from estimated bit-stream code fragments without having an original audio signal fragment available (Fig. 1b col. 6 line 20-63, col. 8 lines 29-35) and regulating said post-processing by adjusting the degree of post-processing (Fig. 1b and col. 6 line 52-61 and col. 13 line 8-41 element 23, 24).

Claim 11 analyzed with respect to claim 10, Truman discloses, wherein detecting a degree to which quantization noise introduced in encoding the successive fragments of audio signal becomes audible due to the post-processing comprises: producing an estimate of a masking threshold for the successive fragments of the post-processed audio signal; producing an estimate of a noise level for the successive fragments of the post-processed audio signal; and determining the degree to which the quantization noise introduced in encoding the successive fragments of the previously-encoded audio

signal becomes audible, according to a degree to which the noise level exceeds the masking threshold for the successive fragments of the post-processed audio signal (Fig. 1b col. 6 line 51-62, col. 9 lines 1-20 and col. 11 line 5-34 and col. 13 line 32-39).

Claim 12 analyzed with respect to claim 10-11, Truman discloses: receiving the successive fragments of the previously-encoded audio signal; decoding the successive fragments of the previously-encoded audio signal; and producing the successive fragments of the decoded audio signal (Fig. 1a-1b).

Claim 14 analyzed with respect to claim 11, Turner discloses wherein producing the estimate of the masking threshold comprises psycho-acoustically modeling the successive fragments of the post-processed audio signal to transform the successive fragments of the post-processed audio signal into the frequency domain; and to derive the masking threshold therefrom (Fig. 1b and col. 6 lines 20-60).

Claim 17 analyzed with respect to claim 11, Truman discloses in which said noise level estimation includes determining quantization levels employed in encoding the successive fragments of the previously-encoded audio signal (Fig. 1b col. 9 lines 1-20

and col. 11, lines 5-34).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Truman et al (7447631) in view of Kirkeby (6928168).

5. Claim 4 analyzed with respect to claim 1-3, Truman does not explicitly disclose wherein said decoder produces stereo-encoded successive pairs of fragments of the decoded audio signal and said post-processor applies stereo-widening to said successive pairs of fragments of the decoded audio signal.

Kirkeby discloses decoder produces stereo-encoded successive pairs of fragments of the decoded audio signal and a post-processor applies stereo-widening to said successive pairs of fragments of the decoded audio signal (abstract and col. 5 line 5-20).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the decoder of Truman with the processing of Kirkeby in order to produce high quality more spatial sound.

Claim 13 analyzed with respect to claim 10-12, recites the limitations of claim 4.

6. Claim 7, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Truman et al (7447631) in view of Moehrs et al (Analysing decompressed audio with the "Inverse Decoder"-towards an Operative Algorithm).

Claim 7 analyzed with respect to claim 2, Truman discloses decoder arranged to receive said successive fragments of the decoded audio signal and to provide therefrom indications of quantization levels employed in the successive fragments of said previously-encoded audio signal (Fig. 1b col. 9, lines 1-20 and col. 11 line 5-34).

Truman does not explicitly disclose an inverse decoder.

Moehrs discloses an inverse decoder (page 8, column 2, Section Conclusion).

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the noise reducer of Truman with the inverse decoder of Moehrs in order to be able to recover the encoded compression parameters as taught by Moehrs (abstract).

Claim 16 analyzed with respect to claim 11, recites the limitations of claim 7

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7. Claim 6, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Truman et al (7447631) in view of Hong et al (5054075).

Claim 6 analyzed with respect to claim 1-2, Truman disclose wherein said masking threshold generator comprises a psycho-acoustic modeling component arranged to receive said successive fragments of said previously-encoded audio signal and to produce successive fragments of a modeled audio signal (Fig. 1b and col. 20-56); Truman does not explicitly disclose to apply a same post-processing algorithm to said successive fragments of the modeled audio signal as said post-processor applies to the successive fragments of the decoded audio signal; to transform said successive post-processed fragments of the modeled audio signal into the frequency domain; and to derive said masking threshold from said post-processed fragments of the modeled audio signal.

Hong discloses apply a same post-processing algorithm to said successive fragments of the modeled audio signal as said post-processor applies to the successive fragments of the decoded audio signal; to transform said successive post-processed fragments of the modeled audio signal into the frequency domain; and to derive said masking threshold from said post-processed fragments of the modeled audio signal (Fig. 2 and col. 4 line 25-53).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the audio system of Truman with the filtering and gain adjustment of

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Hong in order to improve the selection of waveform/noise gain control and thereby improve audio clarity as taught by Hong (abstract).

Claim 9 analyzed with respect to claim 7, 1-2, Truman discloses wherein said noise level detector is arranged to derive from said quantization levels successive distributions of noise level for said successive fragments of the decoded audio signal (Fig. 1b and col. 9 line 1-20 and col. 11 line 5-20), Truman does not explicitly disclose and to apply a same post-processing algorithm to said successive distributions of noise level as said post-processor provides to successive estimates of noise level for said successive fragments of said post-processed audio signal.

Hong discloses apply a same post-processing algorithm to said successive distributions of noise level as said post-processor provides to successive estimates of noise level for said successive fragments of said post-processed audio signal (Fig. 2 and col. 4 line 25-53).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the audio system of Truman with the filtering and gain adjustment of Hong in order to improve the selection of waveform/noise gain control and thereby improve audio clarity as taught by Hong (abstract).

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Claim 15 analyzed with respect to claim 11, recites the method limitations of claim 6

Claim 18 analyzed with respect to claim 17, 10-11, recites limitations of claim 9.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ehara (6334105) (Fig. 1-2). Davis et al (5451954) Fig. 1-2.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FATIMAT O. OLANIRAN whose telephone number is (571)270-3437. The examiner can normally be reached on M-F 10:00-6 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FO

/Xu Mei/
Primary Examiner, Art Unit 2614